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INFORMATION FROM

FOREIGN DOCUMENTS OR RADIO BROADCASTS

REPORT

50X1-HUM

CD NO.

COUNTRY USSR

DATE OF  
INFORMATION 1949

SUBJECT Economic - Railroad equipment

DATE DIST. 16 Nov 1949

HOW  
PUBLISHED Daily newspapers

NO. OF PAGES 4

WHERE  
PUBLISHED USSRDATE  
PUBLISHED 12 Aug - 12 Oct 1949SUPPLEMENT TO  
REPORT NO.

LANGUAGE Russian

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NEW RAILROAD EQUIPMENT DESIGNED AND PRODUCED

WASTE HEAT FROM TRAIN MOTORS TO BE USED -- Gudok. No 116, 28 Sep 48

Two engineers of the Moscow-Ryazan' Railroad System have suggested that the heat produced by the starting resistances of electric motor cars be used to heat the cars. In order to prevent a strong jerk when starting an electric train, rheostats are included in the circuit of the traction motors. In each start, more than 2 kilowatt-hours of electric power are expended to overcome the resistance of the rheostats. All this power is converted into heat and serves no useful purpose. At the same time, to heat the cars of the train in cold weather, a large amount of electric power is taken, especially out of the circuit. On the electrified section of the Moscow-Ryazan' System, every day 20,000 kilowatt-hours are used for this purpose. Daily expenditures of electric power for the starting rheostats amounts to 18,000 kilowatt-hours.

The engineers have designed a heating hood for the rheostats which will permit the heat to be collected. The hood consists of a welded body of angle and bar iron with detachable covers made out of two layers of roofing iron, between which sheet asbestos is put. The hood installation does not interfere with the operation of the rheostats and keeps out dirt, snow, and foreign bodies. Under usual conditions the insulation of the rheostat boxes has to be wiped about once every 4 - 5 days. With the hoods the insulation has to be wiped only when the periodic inspection is made, or once every 6 weeks. The hood has two ventilating hoses which go beneath the seats of the car, and a long exhaust hose fastened vertically to the partition between the car windows. Air is drawn into the hood through the two ventilating hoses, washes over the hot elements of the rheostats, and then goes through the exhaust hose into the car. The flow of heated air into the car is more than 12 cubic meters per minute; this is due to the difference between the levels of the exhaust and ventilating hoses and the difference in temperature of the air in the car and the hood.

From 15 February to 15 April 1949 a motorized car equipped with a heating hood was used on the Moscow-Ryazan' System. The temperature of the air in this car was 4 - 5 degrees higher than in cars coupled to it heated by two groups of electric heaters.

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Adoption of this system for heating results in great savings of electric power. Preliminary calculations indicate that on the Moscow-Ryazan' System alone, about one million kilowatt-hours of electric power will be saved during the heating season. On all electrified sections, the adoption of the hoods would save about 5 million kilowatt-hours of electric power. Besides, thousands of electric heaters and hundreds of heating contactors would be released. Expressed in monetary terms, the yearly saving would be more than one million rubles.

Redesigning the heating of motorized cars would also have the advantage of eliminating overheating of the heating wire, a frequent occurrence when electric heaters are used, which not only interrupts the heating of the car but sometimes puts the high-voltage equipment of the car out of order.

The suggestion on the use of waste heat is being considered by a special commission and also by the railroad scientific engineering and technical society, and has been declared useful and expedient. At present the matter is up to the Main Electrification Administration, which must take measures so that the innovation can be used during the 1949-50 season. -- M. Gamzulin, Chief Engineer of Electrification Service, Moscow-Ryazan' Railroad System

#### NEW BALLASTING MACHINES -- Gudok, No 121, 9 Oct 49

The Northern Railroad System has been using ballasting machines for running maintenance of tracks. In 1948 80.6 kilometers of track were raised with the aid of ballast cars, and in 1949 the machines have been used to raise 104 kilometers of track, as against a planned 100 kilometers. On sections where the ballast has become fouled or distorted, raising of the track is carried out by the addition of 200 - 300 cubic meters of fresh ballast per kilometer. The layer of fouled ballast is removed, the track is raised, and the ballast beneath the ties is loosened. Equal amount of fresh ballast are then put into the tie pockets. For cases of churning track or where deformation of the profile is insignificant, the track is raised 3 - 6 centimeters and fresh ballast is laid, with up to 100 cubic meters of ballast being used per kilometer.

#### PLANT PRODUCES DEFECTIVE BRAKE SHOES -- Gudok, No 122, 12 Oct 49

Brake shoes made by the "Pamyati revolyutsii 1905 goda" Plant for electric motor cars are unsatisfactory. They lack the necessary hardness and are imperfectly cast, which makes it necessary to trim them before they can be installed. All this causes a considerable increase in operating costs. Expenditures for spare parts and materials for each 1,000 kilometers travelled by an electric motor car amount to 147.5 rubles, and almost 90 percent of this sum goes for brake shoes.

In 1946 the Pervaya Electric Motor Car Depot developed a steel-reinforced brake shoe of increased hardness. This new type of brake shoe has a service life 400 - 500 percent greater than that of ordinary shoes, and when a piece of the shoe breaks off it is held in place by the reinforcement and does not fall onto the track. The directors of the "Pamyati revolyutsii 1905 goda" Plant know about this innovation and in February 1949 decided to adapt it to their production. However, as yet they are still producing the defective brake shoes.

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## PLANT UPS RR CAR OUTPUT -- Gudok, No 110, 14 Sep 49

The Kryukovo Railroad Car Building Plant exceeded the prewar level of production in 1948. In the second quarter of 1949 production increased over the first quarter by some hundreds of cars. The July and August production plans were exceeded and the September plan is nearing completing. A conveyor for assembling rolling stock put into operation by the plant has increased production by 20 percent. A 1,000-ton press for col stamping of parts has been assembled. Mechanization of production has lowered labor consumption in the manufacture of gondola cars by 40 percent. The plant is preparing to start production of large-capacity all-metal gondola cars in the fourth quarter.

## NEW CRANE FOR HOISTING LOCOMOTIVES -- Vechernyaya Moskva, No 191, 12 Aug 49

The "Mashinostroitel'" Plant has assembled a so-called bicycle crane designed for use in washing repair of locomotives. The crane mechanizes completely all operations in dismantling and assembly of parts. The crane will undergo operational tests in the near future.

## NEW ALL-METAL PASSENGER CARS -- Vechernyaya Moskva, No 193, 15 Aug 49

The Moscow-Kursk Railroad System has recently received more than 70 all-metal passenger cars. Each car is divided into ten 4-seat compartments. In the near future the cars will be put into express service on the Moscow-Sochi and Moscow-Kislovodsk lines.

The first all-metal dining car is undergoing tests on the lines of the Moscow rail center.

## INTERNAL-COMBUSTION LOCOMOTIVES FOR SWITCHING -- Gudok, No 118, 2 Oct 49

In many stations M 3/2 internal combustion shunting locomotives, made by the Kaluga Plant, may be seen standing idle. This idleness is explained by a lack of fuel, while the locomotives could be run on compressed gas, of which there is an abundance. The amount of compressed gas needed to run one of these locomotives is almost as much as the amount of gasoline needed, and the gas is much cheaper. The gas, a waste product of petroleum processing, could easily be transported in tank cars or in gas containers. About 1,500 rubles would be necessary to convert the locomotives to gas. No changes in the motor assembly would be required, and the machine would retain the ability to operate on gasoline.

At the end of 1948 the entire park of shunting locomotives of the Ordzhonikidze Railroad System was equipped with gas cylinders and converted to gas. In 8 months this park processed 189,193 cars and saved 37,958 locomotive-hours. The average cost of one locomotive-hour was 9 rubles 30 kopecks, about one fifth that of a regular shunting locomotive. To handle one car cost 2 rubles 68 kopecks, or one half the cost when a regular steam locomotive is used.

The gas-powered locomotives have been used with great success in local shunting in the stations of Kursavka, Karamyka, Nagutskaya, and Buynaksk. In the stations of Grozny and Ordzhonikidze they are used on spur tracks where large locomotives cannot operate because of the condition of the track. This year the coefficient of utilization of the locomotives in these last two stations has reached 0.70, which means that each machine works productively 16.8

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hours per day.

All the locomotives are included under the control of the Automobile and Motor Transport Section of the System.

**BOILER BLOWING-DOWN NEEDS IMPROVEMENT** -- Gudok, No 118, 2 Oct 49

The utilization of the process of blowing down locomotive boilers to keep them free of mud and scale is clearly insufficient. A majority of the locomotives are blown down only by lower blowing-through valves or plug cocks. This process does nothing to get rid of the concentration of impurities in the upper levels of the boiler water while the locomotive is in motion.

Some locomotive engineers use the Everlasting valve, installed in the cylindrical part of the boiler, for blowing down the boiler before prolonged ascents. This valve would be more useful if it could serve effectively the upper levels of the water.

Several devices have been developed for blowing down the upper levels of the boiler water, and a small number of locomotives have been equipped with them, with positive results.

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